

ABSTRACT

The present invention provides a method to improve the frequency resolution and phase noise of a synthesized RF signal. It also results in the superior characteristics of instantaneous frequency changeability, wide frequency setting
5 ability, and fully digital ASIC implementation ability. The synthesized RF signal is generated from a higher reference frequency using a variable pulse stretching technique. The amount of the pulse stretch in each cycle is controlled by a phase increment value and is implemented using programmable delay lines. Pulse stretching is extended beyond one cycle by pulse swallowing, allowing the
10 generation of an RF signal from DC up to the input reference clock signal frequency.